ASTROCENT PARTICLE ASTROPHYSICS SCIENCE AND TECHNOLOGY CENTRE INTERNATIONAL RESEARCH AGENDA

NICOLAUS COPERNICUS ASTRONOMICAL CENTER OF THE POLISH ACADEMY OF SCIENCES

Postdoctoral research position in Astroparticle Physics (Sonata-19)

Application deadline: **20 November 2024**
Job type: employment contract (full time)
Scientific discipline: Astroparticle Physics
Monthly gross salary before taxes: **9,500.00 PLN**
Maximum period of contract: 24 months
Offer starting date: Position available after 1st of December 2024
Link to the job offer on Euraxess

Offer description

Applications are invited for a postdoctoral research position at the Nicolaus Copernicus Astronomical Center of the Polish Academy of Sciences (NCAC PAS). The successful applicant will work with Prof. André Cortez on the project “Understanding delayed (spurious) emission mechanisms in dual-phase TPCs for Dark Matter searches" funded by the Polish National Science Center (NCN), through grant SONATA-19 nr 2023/51/D/ST2/02297.
The position will be based in Warsaw, Poland, and may involve occasional travel to and longer stays at LIP (Portugal), IGFAE (Spain) and LLNS (USA).

Skills/Qualifications

We look for applicants able to work in a team, with experience in programming in Geant4, ROOT and Python. Experience with data acquisition/analysis and hardware development (including cryogenic and vacuum techniques, and electronics) will also be considered an asset.
We are seeking applicants who received their Ph.D. in astrophysics, experimental particle or nuclear physics or related fields within the past 7 years (the period may be extended in accordance with the guidelines provided in the competition documentation on the website: https://www.ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2023/uchwala50_2023-zal1_ang.pdf#page=58, page 61). Candidates approaching their Ph.D. defense are also invited to apply (Ph.D. title will be required to start the employment).
The primary responsibility of a researcher for this position will be the simulation study of the gas-liquid interface in dual-phase TPCs, which will lead to design optimization of liquid argon detectors. The research will include design, construction and assembly of novel optical amplification structures for future dark matter detectors as well as of a new dual-phase TPC at AstroCeNT, that will be used to assess the impact of the gas-liquid interface in the performance of such detectors and the minimisation of delayed (spurious) events. The successful candidate will actively participate in the construction of a prototype detector which will pave the way for future detectors (DarkSide-LM).
A high level of proficiency in English is required.

Scope of work includes:
- development and optimisation of the Monte Carlo simulation of the dual-phase TPC;
- update of the simulation to include surface effects;
- preparatory work and tests of hardware components/sensors to be installed in the dual-phase TPC;

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- participation in the data measurement campaigns;
- perform data analysis, including cross-checks and results validation;
- presenting scientific results at conferences;
- preparing technical notes and publications;
- co-supervision of PhD students;
- being prepared to apply for grants.

Selection process:

Documents (in pdf format) should be submitted by e-mail, with a subject "Sonata-19 Postdoc position in Astroparticle Physics", to **recruitment@camk.edu.pl** and they must include:
- a copy of the PhD diploma;
- CV, including the list of publications;
- research statement;
- a scan of the signed NCN GDPR document available here;
- applicants should arrange for two recommendation letters to be sent directly to **recruitment@camk.edu.pl**.

The selection criteria include:

1. the candidate's research achievements including publications in prestigious academic press/journals (50% of the final score);
2. research-related achievements, scholarships, awards and research experience gained in Poland or abroad, research workshops and training courses, participation in research projects (20% of the final score);
3. the candidate's competence to carry out specific tasks in the research project (30% of the final score).

Application deadline: **20 November 2024.** The review of the applications will begin soon after this date and short-listed candidates will be invited for interviews.
The candidates will be informed about the selection results by **27 November 2024.**

Employment conditions:

The successful candidate is expected to start his/her employment on 1 December 2024 (or as soon as possible thereafter). The position is initially awarded for 24 months, with the possibility of extension. The salary will be commensurate to that of Polish researchers at the same career stage, exceeding PLN 9500 gross per month.

Additional information:

For additional information, please contact André Cortez (e-mail: acortez@camk.edu.pl).